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having ranged along the foot of the mountain an hundred miles to seek a vent. On your left approaches the Potomac, in quest of a passage also. In the moment of their juncture they rush together against the mountain, rend it asunder and pass off to the sea.

The first glance of the scene hurries our senses into the opinion that the earth has been created in time, that mountains were formed first, that the rivers began to flow afterwards, that in this place particularly they have been dammed by the Blue Ridge Mountains, and have formed an ocean which filled the whole valley, that continuing to rise they have at length broken over at this spot and have torn the mountains down from the summit to the base.

Probably in the whole realm of literature there does not exist a more striking illustration of the cataclysmic point of view in attempting to explain geological phenomena than is expressed in the above passage, and it serves to illustrate how far in general in the scientific realm we have got away from the catastrophic ideas of Jefferson's day, which antedate even somewhat those of Cuvier and Schlotheim; yet when one examines the literature of modern physiography and sees the readiness with which "an uplifted and dissected peneplain" is invoked to explain every even sky-line or approximate uniformity in heights of mountain summits, while every peculiarity in drainage is accounted for as an inheritance from a past cycle of erosion, overlooking in many cases a simpler explanation involving only "processes now in operation"; he wonders if there does not lurk therein somewhat of the old catastrophism.

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SCIENTIFIC BOOKS

Der Nachweis organischer Verbindungen. Ausgewählte Reaktionen und Verfahren. By DR. L. ROSENTHALER. Verlag von Ferdinand Enke, Stuttgart. 1914. 6 × 9.5 inches. Pp. xvii + 1,070. 35.20 Marks bound.

This work comprises the nineteenth and twentieth volumes of a series of monographs edited under the direction of Dr. B. M. Mar-

gosches, and published under the general title "Die Chemische Analyse. Sammlung von Einzeldarstellungen auf dem Gebiete der chemischen, technisch-chemischen, und physikalisch-chemischen Analyse." The earlier volumes are nearly all technical monographs dealing with the various phases of analytical chemistry. In the present volume, however, there has been gathered together an immense amount of general information for the organic chemist.

Everywhere that chemistry is taught there are given courses in inorganic qualitative analysis and text-books and reference works dealing with the separation and identification of inorganic compounds are to be found in every chemist's library. When, however, we pass into the realm of the carbon compounds we find that an entirely different situation obtains. There are but few texts or reference works dealing with the separation and identification of organic compounds, and it is a rare university that lists a course in qualitative organic analysis. This volume by Dr. Rosenthaler should, therefore, receive a hearty welcome from the organic chemist and will undoubtedly stimulate courses in the separation and identification of organic compounds.

In the introductory chapter are given the various qualitative tests for carbon, hydrogen, nitrogen, the halogens, sulfur, phosphorus, arsenic, etc., following which, in succeeding chapters are considered hydrocarbons, alcohols, aldehydes, ketones, carbohydrates, phenols, acids, oxy-acids, aldehyde- and keto-acids, ethers, quinones, esters, halogen derivatives, nitro derivatives, nitriles and iso-nitriles, acid amides, amines, aromatic hydrazines, azo and diazo compounds, acid derivatives of organic bases, heterocyclic bases, amino acids, polypeptides, organic sulphur compounds, organic arsenic compounds, alkaloids, resin acids, tannins, glucosides, saponines, pigments, proteins, enzymes and toxalbumens.

Rosenthaler's scheme of analysis is to first of all determine to which group or groups of compounds the unknown belongs. In order to do this the characteristic reactions of each class mentioned above are given very explicitly.

Then, following the class reactions, are the more common individual compounds, listing in each instance the physical and physiological properties of the compound, the methods for its preparation, the characteristics of its important compounds and derivatives, following which are methods for its identification, and in many instances methods for its separation from other compounds as well as its quantitative estimation. In all there are considerably over 2,500 organic compounds considered in greater or less detail.

The volume closes with a chapter on the preparation of the necessary reagents, followed by a table of melting points arranged in ascending order, this being in turn followed by a boiling point table similarly arranged. The arrangement of the index is decidedly novel. The index of compounds is in tabular form, giving the name of the compound, the page citation, the formula, the molecular weight and the percentage composition. The volume is concluded by an author index to the numerous literature citations.

Organic chemists have long felt the need of such a work, and it will, I am sure, find a hearty welcome. The identification of an organic compound should be relatively simple if this reference work is used as a supplement to Beilstein and Richter's "Lexikon." It is likewise admirably adapted for use as a text in a course of qualitative organic analysis.

ROSS AIKEN GORTNER

Molecular Association. By W. E. S. TURNER.

London and New York: Longmans, Green and Co. 1915. Pp. viii + 170. Cloth. \$1.40 net.

This is a further contribution to the series of monographs on inorganic and physical chemistry edited by Alexander Findlay. Dr. Turner, with the cooperation of a number of his students, has prepared a praiseworthy contribution to this excellent series of publications. In the nine chapters of the book are given an introduction and a discussion of molecular complexity in gases, dissolved substances, and the liquid state. Special attention is given to "the influence of the solvent"

in the case of solutions, also to surface tension, and other methods of measuring molecular complexity of liquids, to the molecular complexity of water and the theory of dynamic allotropy. The selection and use of molecular formulæ, molecular association and physical properties, and molecular association and chemical combination are the subjects of the last three chapters. A long and fairly complete list of references to original literature is given at the end of the book. The appendix contains in tabular form a summary up-to-date of work done on the molecular complexity of dissolved substances. Here also references to original publications are added.

The author evidently regards the various molecular weight determinations in solutions as indicative of the actual molecular weights of the dissolved substances, and does not consider that the "abnormally" high or low molecular weights so frequently observed may quite as well be explained by a species of chemical union between solvent and dissolved substance. Thus it is not surprising that the entire subject of "molecular association and chemical combination" should have received only a step-motherly treatment, but five pages of the monograph being devoted to it.

The book is a compilation and not an original contribution. It will doubtless be useful to the advanced student of physical chemistry, who has thus brought before him in available and readable form the essence of the various important contributions on the subject treated. The author is clearly an enthusiast over the molecular theory, and the student can not but get some of this enthusiasm in perusing the monograph. May this result in further experimentation that shall bring to light more useful knowledge and a better conception of the act of solution as related to chemical combination, on the one hand, and the forces of cohesion and adhesion, on the other hand.

The book is printed on good paper, the typography is excellent, the cuts are well executed, but the binding is unattractive, cheap and not durable in form.

LOUIS KAHLBERG